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For the Advocate of Science.

GEOLOGY, No. 18.

e subject of my present number is *mineral veins.*

neral description of veins.—I have had frequent occasion in the course ese essays to speak of veins, but, except in the case of veins of basalt saltic dykes, I have given no precise description of them. The obser- ns on dykes in my 8th number, will apply in a general point of view t veins. They vary in their character, being composed most frequently terials unlike the strata which they intersect. To acquire some idea e nature of veins, my readers will imagine the surface of the earth rent chasms by internal violence, or covered with fissures or cracks, by the action of the strata in drying; these chasms and fissures becoming wards filled with various kinds of rock, sand, or clay.

ey contain ores.—Although veins are composed of various materials, as ite, limestone, basalt &c., yet those which contain metals are of the est importance, and will receive the principal part of my attention. he valuable metals, with the exception of iron, are chiefly derived from

cious metals in the oldest formations.—Metallic veins are found chiefly e primary and transition formations, or in the very oldest of the se- ary series. As a general rule, the precious metals are found in the t strata. The class of transition strata abounds more than any other tallic ores.

te in which ores are found in veins.—A vein is never composed entirely kind of ore, but the ore occurs mingled with a large quantity of other [illegible] ores.

ngue or veinstone.—The body of a vein is generally separated from the through which it passes by a thin wall or lining of other materials, and imes also by a layer of clay which penetrates more or less through bstance of the vein. This is called the *gangue* or *veinstone.*

mensions of metallic veins.—The width of metallic veins varies from al feet to a few inches. The depth to which they extend has not been tained, as there are no instances of veins being worked out in depth, h they sometimes become too poor to be profitably mined. The st mine in England reaches downwards 472 yards, and in Bohemia is eepest mine in the world, which is 1000 yards, or more than half a beneath the surface.

tensive vein in the Andes.—The most extensive vein in the world is sed to be one in the Andes, containing silver ore; it is 9 feet in thick- nd 90 miles in length, so far as discovered with certainty, though it lieved to extend to the distance of 300 miles. Small veins branch off either side of this immense wall, and penetrate the neighboring moun- to the distance of 30 miles.

ferent ores occur at different depths.—Veins frequently contain different at different depths. Iron, copper, cobalt and silver succeed each in some of the mines of Saxony, and in France are some mines that in copper ore in the lowest part, silver ore above, and over this iron In the Cornwall mines, the richest depth for tin is considered to be er than that for copper.

e Botallack mine in Cornwall.—In Cornwall is a singular deposit of r ore called the Botallack mine. The principal vein has several es on one side resembling little rivulets emptying into a large stream. ever the large vein receives one of these branches, it is much richer ore it contains. The entrance to this mine is at the foot of a preci- more than 200 feet high, on the borders of the Atlantic ocean, and the extends upwards of 200 yards under the sea. It is said that the dash- the waves and the rolling together of the stones on the bed of the aring a storm, are distinctly perceived in this submarine dungeon. The miners, with their families, are here perpetually immured, and seldom see the light of day. One might suppose such an abode unfavorable to the proper development of the human frame; but the eminent geologist Bakewell informs us that he has seen rising from that gloomy subterranean dwelling, a native inhabitant, one of the best formed and noblest looking men he ever beheld, a perfect model for the Apollo of a sculptor.

Relative age of veins.—Where a vein cuts through several strata of different ages, it is evident that the vein was formed subsequently to those strata; but where it is found only extending to the depth of a single stratum, the fissure may have been formed and filled at the period when that stratum was consolidated.

How were veins filled?—In what manner metallic veins were filled with ore is a question that has divided geologists, and more especially interested the advocates of the rival theories of Werner and Hutton. Hutton supposed them to have been filled by the forcing upward of melted matter into fissures previously formed in consequence of the force of a subterranean fire. Werner, on the other hand, rejecting the idea of a central fire, supposed the fissures to have been formed by the shrinking of the materials of which the mountains were constructed; and that metallic veins were filled by the ores which were poured in from above, in a state of solution. Against the latter view, it is urged with unanswerable force, that the heavy metallic solutions would have been deposited in the fissures in the valleys and in beds in the same situations; whereas metallic veins are only found in elevated and mountainous regions, in primitive and transition strata. The theory of Hutton appears to be the more plausible of the two; though it must be admitted that some veins which are composed chiefly of [illegible] of the superjacent rocks, have been filled by the washing in of their materials at the upper opening of the fissure. S.

For the Advocate of Science.

AN INTRODUCTORY LECTURE ON CHEMISTRY.

(*Continued from page* 122.)

For the purpose of concealing their processes from the world, and at the same time impressing the minds of the vulgar with wonder and regard, the alchemical writers assumed a mysterious and metaphorical style, often completely unintelligible. A modern professor of the art has represented the works of Geber, the Arabian prince to whom I have before referred, as "so wonderfully enchanted that they cannot possibly be understood unless they be read over a thousand times, and this also by a witty reader." "Fools," he adds, "must be utterly excluded from reading of them." It is on account of this obscurity that Dr. Johnson supposes the word *gibberish* to be derived from the name of *Geber.* An instance of the allegorical style of the alchemists is observed in the exclamation of Geber, "Bring me the six lepers that I may cleanse them;" by which he implied the conversion of the six metals then known into gold.

In order to present a more accurate picture of the unintelligible style of the alchemists, I will quote a portion of a recipe for the manufacture of the philosopher's stone, taken from an ancient work in my possession, written under a fictitious name. The book is entitled, "A New Light of Alchemy," by "Michael Sandivogius, i. e. anagrammatically, divi leschi genus amo"—I love the spirit of the divine law. In the preface to this work, the translator avers,

"If any one should ask me what one book did most conduce to the knowledge of God and the creature, and the mysteries thereof, I should speak contrary to my judgment if I should not, next to the sacred writ, say Sandivogius." The recipe is as follows:—"Take of our earth, through eleven degrees, eleven grains—of our gold, and not of the vulgar, one grain—of our lune not the vulgar, two grains: but be thou well advised that thou takest not common gold and silver, for these are dead: take ours which are living: then put them into our fire, and let there be made of them a dry liquor; first of all the earth will be resolved into water, which is called the mercury of philosophers; and that water shall resolve these bodies of gold and silver, and shall consume them, so that there shall remain but the tenth part with one part; and this shall be the radical moisture of metals. Then take water of salt nitre, which comes from our earth, in which there is a river of living water, if thou diggest the pit knee-deep, therefore take water out of that, but take that which is clear; upon this put that radical moisture, and set it over the fire of putrefaction and generation, not on such an one as thou didst in the first operation: govern all things with a great deal of discretion, until colors appear like a peacock's tail," &c.

It may readily be inferred that the writers of the unmeaning jargon in which the processes of alchemy were clothed, being conscious of the obscurity or absurdity of their productions, attempted to apologize for such palpable nonsense. This they did by repeatedly asserting that their writings were not designed for the comprehension of the ignorant, but were only adapted to those who were initiated more or less into the mysteries of the art. Thus, Basil Valentine, one of the greatest authors of the 15th century acknowledges that his sayings are "strange, and require strange people to understand them," and that they "must be understood by an incomprehensible way!"

The same design, in all probability, induced them to mingle with their operations the profession of a dependence on supernatural agency. Their art was called "the divine art," and they frequently asserted the necessity of relying on the Deity for a revelation of its mysteries, thus inculcating to the vulgar a superstitious awe and reverence of their sect. Severe judgments were denounced against any who might dare to violate their prescriptions. The same eminent author, whom I just quoted, intreats and admonishes his readers to observe all that he has revealed, so that they "may not undergo a denial of pardon for their sins, and a continued, perpetual vengeance for eternity." And in another place, after having disclosed an operation as far as he was permitted by the "supremest emperor," he gravely cautions the reader to observe wisely the directions given, that he "may not endure a bath in hell!"

I have hitherto spoken only of the philosopher's stone, and the transmutation of metals into gold, as the grand ultimatum of the exertions of the alchemists. But their expectations and labors did not stop here. A few vague notions had long been entertained of a universal remedy for all diseases of the human system. But the idea was not acted on till the fifteenth century. The school of medicine established centuries previously by Galen and Avicenna, long maintained undisputed sway. Vegetable and animal preparations were exclusively prescribed by the dominant sect. In truth, this system was nothing less than the modern "botanical practice of medicine." Metallic and mineral remedies were regarded as poisons. The internal use of iron was so much dreaded by Avicenna, one of the founders of this school, that he seriously advised a magnet to be administered to any one who should swallow iron, in order to prevent the deleterious effects of the latter. While such was the state of medical science throughout Europe, the l rosy and some other diseases prevailed to so great an extent, t new and more effectual medicines were sought. Basil Valentin German monk, whose name I have already mentioned, discove the medical properties of antimony, and published a defence of remedy under the title "Currus triumphalis Antimonii,"— triumphant chariot of antimony. The medicine soon became po lar, and performed such wonderful cures as to give rise to the h of the discovery of a panacea or universal remedy, which was heal all disorders, and confer immortality on human nature. accomplish this glorious purpose, the "Philosopher's Stone," "Tr ture of Metals," "Spirit of Mercury," or "Water of Paradis which were so many designations for the same imagined substa presented itself as the proper means. For the conclusion was vious that an agent capable of cleansing the baser metals of t impurities, also possesses the properties of a universal elixir, ca ble of preserving the human body from every evil.

The application of chemistry to medicine, thus commenced Basil Valentine, was effectually followed up by Paracelsus native of Switzerland, who flourished in the early part of the 1 century. Paracelsus was one of the most extraordinary men that lived. By a series of fortunate events, he was elected to the c mical chair of the university of Basil, the first professorship of c mistry established in Europe. While occupying this chair, he bu with great solemnity the writings of Galen and Avicenna, and clared to his audience that if God would not impart the secrets physic, it was proper to consult the devil. His inordinate va manifested itself on every possible occasion, especially with reg to his cotemporary physicians to whom he declared that "the w down of his bald pate had more knowledge than all their writ the buckles of his shoes more learning than Galen and Avicen and his beard more experience than all their universities." well deserved the title bestowed on him, of the "Prince of Empyri

The writings and instructions of Paracelsus served to render study of chemistry popular throughout Europe, and to establish chemical sect of physicians in opposition to the Galenists. He the first to make use of mercury as an internal remedy. Imbi the foolish notions of Basil Valentine respecting a universal m cine, he labored much to discover the philosopher's stone, boasted that he had succeeded, and that he possessed the imm elixir capable of prolonging life indefinitely. He even boaste attaining so great skill in chemistry, that he should soon be ab make men in his crucible.

The rage for discovering the hidden panacea now became uni sal, and books filled with senseless jargon were multiplied wi limit, pretending to reveal the invaluable secret. The e ascribed to it bear a striking analogy to those attributed to a ce medicine of the present time. The quantity of a wheat corn i rected by one of its discoverers to be dissolved in a little good and given to the patient. It drives forth all the humors, "e ling only what is adverse to nature, and preserving what is c nant unto its being; wherefore the patient is not sicker or we but the more he sweats the stronger will he be, the veins wi lighter, and the sweat continues till all evil humors be driven of the body, and then it ceases." By repeating the same "the party will not think himself to be a man, but rather a sp and if he take the like quantity "every day for the space of days, his body will be as spiritual as if he had been nine da the terrestrial paradise.*

* "A work of Saturn, of Mr. John Isaac Holland."

century after Paracelsus lived Van Helmont, an eminent sician of Germany, who may be regarded as the last of alchemists. Treading in the footsteps of Paracelsus, he spent years in torturing every substance in nature, and thus disco- d the properties of many minerals and plants not previously mined. He also boasted the discovery of the universal medi- ; but negiecting, perhaps to apply it to his own case, he died he age of 63. The failure of the life prolonging panacea of Pa- elsus was still more remarkable. For, after having quarrelled h the magistracy of Basil, who expelled him from his professor- , he led a life of debauchery, and died in his forty-eighth year, h a bottle of his immortalizing elixir in his pocket.

bout the middle of the seventeenth century, after the death of Helmont, alchemy fast declined, and shortly afterwards be- e a heap of rubbish. In this common wreck, chemistry, or at st so much of true science as was mingled with the hallucina- s of alchemy, was partially involved. But as chemistry had ed an ascendency in the medical schools, it continued to be tivated by the professors of the healing art, and was soon esta- hed on the basis of rigid experiment and rational principles. e advancement of the science in the last century was unexam- d, while its former associate, the delirious production of the dark s, sunk into infamy, and was commended to the officers of pub- justice as a pest to human society.

The history which I have now given furnishes a lesson on human ure almost without a parallel. That the speculations of alchemy uld gain extensive credence in an era of mental darkness, is not bject of astonishment. Opinions quite as visionary and absurd e advocates in the present age of light, when credulity and su- stition, prejudice and false reasoning, do not reign supreme over human mind. The principal object of surprise is the confidence osed by mankind in pretensions capable of being accurately ghed in a moment in the balance of experiment—the imposition ich was practised for ages on persons who might at any moment e dispelled the delusion by applying to it the torch of truth. It rue that efforts were occasionally made to determine the merits rofessed gold makers. Some of them were imprisoned and fur- hed with chemical apparatus, with the promise of liberation when y should make a certain quantity of gold. Though it does not ear that any gold was ever procured by these means, yet the propitious result of the experiment does not seem to have had the st effect in breaking the shackles which chained the public mind. the contrary the vulgar throng insanely hugged their fetters, ile the devotees of the "divine art," whether blind enthusiasts or en sighted impostors—whether fools or knaves, enjoyed the au- rity and homage lavished on them by the slavish crowd.

Various were the motives by which the alchemists were insti- ed. Many of them were poor, and travelled about the country ealing the secret for a pecuniary compensation—thus making d, not by transmutation, but by vending patent rights. Some of m appear to have sacrificed their reason to credulity, and dis- ded the evidence of their senses to pursue an illusory phantom ich presented to their avaricious desires golden temptations. As- tions founded on false theory, in this manner usurped the place of ts. Thus originated the confident estimate that the "philoso- r's stone" might be so perfected as to change into gold 272,330 rts of base metal. But a large proportion of the alchemists were nt impostors, whom ambition and a passion for notoriety incited pursue an unprincipled course. A memorable instance of this d is presented by one of the Roman pontiffs, John XXII. who asserted that he had made two hundred ingots of gold, each weighing a hundred pounds! To the same class belongs Basil Valentine, who in accordance with the custom of the craft, did not scruple to invoke the deity in confirmation of his pretended revelations. A specimen of this avowed reverence for the Divine power is exhibited in his treatise on "Natural and Supernatural Things," in which, after having disclosed a process for making some mysterious preparation, he expresses a devout fear lest he should have discovered too much, and adds: "But I hope to prevail with God by prayer that he will not charge it on me as a deadly sin, because I began the work in his fear, obtained it by his grace, and revealed it for his glory."

(*To be continued.*)

LIFE OF LINNÆUS.

Continued from page 126.

The second part of Mr. Fee's work contains extracts from the correspondence of Linnæus with the naturalists of his time. This correspondence was immense, and Linnæus said himself to the Abbe Duvernoy, that ten hands like his own would not suffice to answer all the letters which were addressed to him. More than a thousand of his letters, addressed to one hundred and sixty correspondents, have been preserved; almost all were written in Latin; that of the earliest known date is addressed to Rudbeck, his benefactor, dated 29th of July, 1731, and his last to Masson, an English botanical collector, in 1776. They consequently comprehend a space of forty-five years. It must be observed, that notwithstanding the mental decay of his latter years, Linnæus was one of those whose literary lives are the longest. His first work (*Hortus Uplandicus*,*) was dated in 1731, and the last (*Planta Aphyteia*,) in 1776, forming a duration of forty-five years, during which the publications of this indefatigable man rapidly succeeded each other. Mr. Fee has given a very careful chronological list of them. Almost at the same time, a learned Swedish botanist, Mr. Wilkström, published in his *Conspectus literaturæ botanicæ in Suecia*, (1 vol. in 8vo. *Holmiæ*, 1831,) a list and a review of the botanical writings of Linnæus.

The part of Mr. Fee's work relating to the correspondence of Linnæus, being only an extract, need not detain us, but the third part claims more attention, from its containing some curious anecdotes of this eminent man.

The relation of Linnæus with Artedi, is that in which he shows himself in the most endearing light. On arriving at Upsal, in 1728, Linnæus inquired for the student who evinced the most talent; Artedi was named. The great naturalist soon entered into close intimacy with him; they labored together at different branches of natural history, and after a time of trial, each ceded to the other the parts in which he appeared superior; thus Linnæus yielded to Artedi chemistry and ichthyology, and Artedi gave up to Linnæus plants, birds and insects; the two friends continued to work together upon stones and quadrupeds, where they were judged equal in strength. This intimacy was interrupted by their travels; they met again in Holland in 1735. Linnæus presented Artedi to Seba, in order to aid him in publishing his great work. Their meeting had reëstablished the habits of their youth of confiding to each other their labors, and of mutual consultation. Artedi unhappily fell into one of the canals of Amsterdam, and was drowned. Linnæus engaged Mr. Cliffort to buy his papers, and published, under his friend's name, the valuable works which he had left upon the classification of fishes.

The relations between Linnæus and Dillenius commenced in a less benevolent manner. This botanist, who, at the time of Linnæus' first appearance, was without any doubt the most able of his time, distinguished himself by great exactness in the study of details, but never appeared to be seriously engaged with general

* This work is very rare, and is not cited, either in the *Biblictheque de Haller*, nor in the very recent and very accurate list of Wilkstrom; I point it out here agreeably to Mr. Fee,

ideas; he had, of course, but a very inadequate perception of the real value of the innovations of Linnæus, but felt strongly the embarrassments which a new language, momentarily, introduces into science.

This man is confounding all botany, said Dillenius to his friend Sherard, on seeing Linnæus enter. In many respects, however, he yielded his prejudices. Linnæus, in his sojourn in England, and in his correspondence, astonished him by the extent of his knowledge, and brought him over by his urbanity.

Another rival of Linnæus, who would have been the most dangerous of all, had he proceeded directly in the same career, was Haller. This astonishing man, at once a poet, physician, anatomist, physiologist, bibliophile and naturalist, had very remarkable ideas relative to the natural method, and would doubtless have made immense strides, if botany had been the special object of his researches. He confined his ideas to a too contracted sphere, the Flora of Switzerland, and he rendered his work less popular, by not distinguishing the nomenclature of Linnæus from his classification; and in rejecting the first, which is excellent, from an antipathy to the second. These two celebrated men were for a long time on a footing of intimacy and confidence, and notwithstanding a diversity of opinions, they rendered each other justice. Some light clouds appeared from time to time on occasion of their reciprocal criticisms, and there arose a sort of misunderstanding between them, by reason of Haller's indiscretion, in publishing some old letters of Linnæus, which contained private details of his life, and especially relative to his marriage.

It is but justice to Linnæus, to state that during his whole life he refrained from replying to the criticisms, (often very severe,) that were made upon him and his writings, either because he disdained them, or because he felt that he had a larger and more glorious mission to fulfil. He allowed Siegesbeck, Browall, etc. to let loose their choler against him, and enjoyed in peace the admiration of his age. The only instance of transient ill will, which can be cited, is against Browall. This person, in his youth, was very humble, in relation to Linnæus, and the latter dedicated to him a genus which contained only one species, *Browallia demissa*. Afterwards, made Bishop of Abo, Browall assumed to be a great lord, and Linnæus found a second species which he named *Browallia exaltata*. Browall having become furious, wrote against Linnæus, pamphlets in no very measured terms; a third species was found a little different from the genus, and Linnæus named it *Browallia alienata*. By a singular chance no other species of the genus has ever been found, so that the names of Browallia still preserve the anecdote entire.

Mr. Fee takes the trouble to exculpate Linnæus from an accusation against him relative to Buffon; the genus which bears the name of this great naturalist is written in Linnæus (with a single *f*) *Bufonia*, which, it is said, was designed to indicate toad plants. Ventinat, wishing to exculpate Linnæus, says that he has given this name because the plant grows in moist places, while on the contrary it grows on the most sterile rocks. The truth is it was not Linnæus who committed this orthographical error. The genus was named *Bufonia* by Sauvages in his method of leaves, and with a dedication so honorable to Buffon, that it is evidently only a simple error. Linnæus admitted it without any further examination, and was indignant that so injurious an idea should be attributed to him.

The error of the public rested on the fact that many of the names established by Linnæus had allusions to the persons to whom the genera were dedicated; it is thus that he named *Bauhinia*, in honor of the two illustrious brothers Bauhin, a genus, whose species have all the leaves composed of two folioles; again, having received a genus from India, collected by surgeon Dalberg, sent by the latter to his brother, a banker at Copenhagen, and transmitted by the banker to Linnæus, he named the genus *Dalbergia*; one of he species had the fruit pointed, this was the D. *lanceolaris*, in honor of the surgeon; the fruit of the other was round, this was the D. *monetaria* in honor of the banker.

The collections of Linnæus were very considerable for his time, and his herbal was, in particular, the special object of his care and affection. He states in autographical notes, the origin of the plants which compose it, many of which were brought from the most distant countries, at a time when travelling was far from being as easy and as frequent as at present, and when travellers, too much penetrated with the idea that the same vegetables might be found in very different countries, neglected often to collect them. "*My herbal*, said Linnæus, "*is without contradiction the greatest that ever* [illegible] *seen*;" but although this assertion may not be very just, (since the herbals of Vaillant and Tournefort, then in existence, appear more considerable.) if admitted to be such, this herbal must have contained about 8000 species, for the works of Linnæus contain altogether an indication of 7982 plants, and if some should have been obtained after their publication, it is certain that others pointed out in his books, are wanting in his herbal. We may judge of the progress which botany has made within half a century, and in a great measure by the influence of Linnæus, if we take into consideration the increase of actual collections. There exist many herbals of thirty and forty thousand species and one of them reaches at present to about fifty-five thousand. Its proprietor has sometimes in one single year received more species, than Linnæus during his whole life. The globe is explored in all parts, with an activity which astonishes the imagination, and it may be supposed with some truth, that within half a century there may have been discovered annually a thousand species.

(*To be continued.*)

THE ADVOCATE OF SCIENCE.

Eleventh Month 7, 1833.

Erratum.—In the article on chemistry, in our last number, the word chemy is stated to be derived from the article *al*, and the Arabian word *chemy*. It should read, from the Arabian article *al*, and the word *chem*. The latter term is of Egyptian origin, we believe.

TO CORRESPONDENTS.

We have on hand some observations in reply to our ingenious correspondent "L. H. P." which shall appear in our next number. Meantime, we will merely say that we are at odds with him, in toto. Our reasons, we presume, will prove satisfactory to him.

An article from "Rusticus" relating to the chain question, in which he promises a solution to the query of "B." and the weather journal for last month, were received too late for present paper.

We should be glad to hear more frequently from "Barbara." Her letter is reputed to be inquisitive and curious; and if correctly judged in this respect, we offer them a fair field for the exercise of their useful propensity.

A public meeting has been lately held in Richmond, Va., for the purpose of adopting measures for the suppression of gambling, at which near a thousand persons were present: and a committee was appointed to examine and ascertain whether the prevalence of this crime is to be attributed to defective laws, or a want of energy in the execution of those already existing.

We are unwilling to pass over this circumstance without making a few remarks. The rapid increase of crime throughout our country, both as respects its extent and enormity, is a subject which should arrest the attention of every individual, and awaken him to a sense of the importance of using exertions for the common benefit of society. The severe penalties which our laws provide in case of their infraction, and the certain and undign punishment which the criminal must see awaits him, are no longer adequate preventives against the commission of the most revolting and inhuman acts. To examine into the causes of this moral depravity of our fellow men, is not the work of a moment; but with the most prominent may be ranked the want of education among the humble classes of our own citizens, and the increasing importation of the most abandoned wretches of the old world into the United States.

In the first place, therefore, until a system of education is established which will afford to every citizen an opportunity of cultivating his mind, legal enactments will not prove effectual in subduing the evil: for let the law, and not a fear of it, should be the regulating medium of

rand: it is the only one which will effectually secure implicit obedience to its decrees.

As to the importation of foreign criminals, it is a subject which should elicit the attention of our government. It is no breach of hospitality to exclude them from a home in our land. But it is time for every American to be alarmed, when the presumption of a foreign power extends so far as to freight a vessel with her outlaws, with an intention of landing them on our shores. Quietly submitting to such an imposing system as this, we may well fear for the peace of our firesides, the safety of our homes, and the stability of our government.

In vain may the voice of public convocations go forth, with a solemn appeal on behalf of virtue; in vain may philanthropists toil to heal the depravity of their fellow men, or courts of justice render more rigid their penal codes: for what can all these avail over a people who have been educated in the ways of evil, and schooled in the prison walls of Europe? whose souls received the seeds of pollution in the tender age of childhood, which "grew with their growth, and strengthened with their strength," till age brought on the reprobate who acknowledges the legislation of no power, human or divine?

But notwithstanding this may be a very discouraging prospect, it offers the stronger argument of the necessity for action. While rejoicing in the measure our brethren of the old dominion have adopted, we fervently hope their benevolent object may be accomplished, and such a good example universally followed.

Our readers will observe an article on animal magnetism in the present number of the Advocate. The miraculous cures said to be effected formerly, by this invisible agent, have been placed by our *savans* on a coördinate scale with the no less extraordinary operations of witchcraft. But if it be true that the French Academy of Sciences has recognized the system as a matter of fact concern, the sneers and ridicule it has heretofore received will doubtless be transmuted for the grave air of philosophical investigation. And if its powerful influence be well substantiated, all we can do is to offer our sympathies to the children of Æsculapius. Poor doctors! but a little while ago did a modern Chiron put their science to a nonplus, by proclaiming that steam and emetics were the all in all of the healing art. Soon after appeared the memorable disciple of Galen, who was not to be foiled by crooked bones or disjointed limbs; and now, to complete the modern system of medicine, comes animal magnetism, combining all the virtues of its forerunners, causing the blind to see, the maimed to walk, and the sick o recover!

DR. GODMAN'S RAMBLES OF A NATURALIST.

(*Continued from page* 127.)

On the first arrival of the crabs, when they throng the shoals of the creeks in vast crowds, as heretofore mentioned, a very summary way of taking them is resorted to by the country people, and for a purpose that few would suspect without having witnessed it. They use a three pronged fork, or gig made for this sport, attached to a long handle; the crabber standing up in the skiff, pushes it along until he is over a large collection of crabs, and then strikes his spear among them. By this several are transfixed at once and lifted into the boat, and the operation is repeated until enough have been taken. The purpose to which they are to be applied is to feed the hogs, which very soon learn to collect in waiting on the beach when the crab spearing is going on. Although these bristly gentry appear to devour almost all sorts of food with great relish, it seemed to me that they regarded the crabs as a most luxurient banquet; and it was truly amusing to see the grunters, when the crabs were thrown on shore for them, and were scampering off in various directions, seizing them in spite of their threatening claws, holding them down with one foot, and speedily reducing them to a state of helplessness by breaking off their forceps. Such a craunching and cracking of the unfortunate crabs I never have witnessed since; and I might have commiserated them more had I not known that death in some form or other was continually awaiting them, and that their devourers were all destined to meet their fate in a few months in the sty, and thence through the smoke house to be placed upon our table. On the shores of the Chesapeake I have caught crabs in a way commonly employed by all those who are unprovided with boats and nets. This is to have a forked stick and a baited line, with which the crabber wades out as far as he thinks fit, and then throws out his line. As soon as he finds he has a bite, he draws the line in, cautiously lifting but a very little from the bottom. As soon as it is near enough to be fairly in reach, he quickly, yet with as little movement as possible, secures the crab by placing the forked stick across his body and pressing him against the sand. He must then stoop down and take hold of the crab by the two posterior swimming legs, so as to avoid being seized by the claws. Should he not wish to carry each crab a shore as he catches it, he pinions or *spansels* them (as the fisherman calls it.) This is a very effectual mode of disabling them from using their biting claws, yet it is certainly not the most humane operation; it is done by taking the first of the sharp pointed feet of each side, and forcing it in for the length of the joint behind the movable joint or thumb of the opposite biting claw. The crabs are then strung upon a string or wythe, and allowed to hang in the water until the crabber desists from his occupations. In the previous article crabs were spoken of as curious and interesting, and the reader may not consider the particulars thus far given as being particularly so. Perhaps, when he takes them altogether, he will agree that they have as much that is curious about their construction as almost any animal we have mentioned, and in the interesting details we have as yet made but a single step.

The circumstance of the external skeleton has been mentioned, but who would expect an animal, as low in the scale as a crab, to be furnished with ten or twelve pair of jaws to its mouth? Yet such is the fact, and all these variously constructed pieces are provided with appropriate muscles, and move in a manner which can scarcely be explained, though it may be very readily comprehended when once observed in living nature. But, after all the complexity of the jaws, where would an inexperienced person look for their teeth? surely not in the stomach? Nevertheless, such is their situation; and these are not mere appendages, that are called teeth by courtesy, but stout regular grinding teeth, with a light brown surface. They are not only within the stomach, but fixed to a cartilage nearest to its lower extremity, so that the food, unlike that of other creatures, is submitted to the action of the teeth as it is passing *from* the stomach; instead of being chewed before it is swallowed. In some species the teeth are five in number; but throughout this class of animals the same general principle of construction may be observed. Crabs and their kindred have no brain, because they are not required to reason upon what they observe; they have a nervous system excellently suited to their mode of life, and its knots or ganglia send out nerves to the organs of sense, digestion, motion &c. The senses of these beings are very acute, especially their sight hearing and smell. Most of my readers have heard of crab's eyes, or have seen these organs in the animal on the end of two little projecting knobs, above and on each side of the mouth; few of them, however, have seen the crab's ear, yet it is very easily found, and is a little triangular bump placed near the base of the feelers. This bump has a membrane stretched over it, and communicates with a small cavity, which is the internal ear. The *organ* of smell is not so easily demonstrated as that of hearing, though the evidence of their possessing the sense to an acute degree is readily attainable. A German naturalist inferred, from the fact of the nerve corresponding to the olfactory nerve in man being distributed to the antennæ, in insects, that the antennæ were the organs of smell in them. Cuvier and others suggest that a similar arrangement may exist in the crustacea. To satisfy myself whether it was so or not, I lately dissected a small lobster, and was delighted to find that the first pair of nerves actually went to the antennæ, and gave positive support to the opinion mentioned. I state this not to claim credit for ascertaining the truth or inaccuracies of a suggestion, but with a view of inviting the reader to do the same in all cases of doubt. Where it is possible to refer to *nature* for the actual condition of facts, learned *authorities* give me no uneasiness. If I find that the structure bears out their opinions, it is more satisfactory; when it convicts them of absurdity, it saves much fruitless reading, as well as the trouble of shaking off prejudices.

The first time my attention was called to the extreme acuteness of sight possessed by these animals, was during a walk along the flats of Long Island, reaching towards Governor's Island in New York. A vast number of the small land crabs, called fiddlers by the boys (*Gecarcinus*,) occupy burrows or caves dug in the marshy soil, whence they come out and go for some distance, either in search of food or to sun themselves. Long before I approached close enough to see their forms with distinctness, they were scampering towards their holes, into which they plunged with a tolerable certainty of escape; these retreats being of considerable depth, and often communicating with each other, as well as nearly filled with water. On endeavoring cautiously to approach some others, it was quite amusing to observe their vigilance; to see them slowly change position, and from lying extended in the sun, beginning to gather themselves up for a start should it prove necessary; at length standing up as it were on tiptoe, and raising their pedunculated eyes as high as possible. One quick step on the part of the individual approaching was enough—away they would go, with a celerity which must appear surprising to any one who had not previously witnessed it. What is more remarkable, they possess the power of moving equally well with any part of the body foremost, so that when endeavoring to escape, they will suddenly dart off to one side or the other, without turning round, and thus elude pursuit. My observations upon the crustaceous animals have extended through many years, and in very various situations; and for the sake of making the general view of their qualities more satisfac-

tory, I will go on to state what I remarked of some of the genera and species in the West Indies, where they are exceedingly numerous and various. The greater proportion of the genera feed on animal matter, especially after decomposition has begun; a large number are exclusively confined to the deep waters, and approach the shoals and lands only during the spawning season. Many live in the sea, but daily pass many hours upon the rocky shores for the pleasure of basking in the sun; others live in marshy or moist ground, at a considerable distance from the water, and feed principally upon vegetable food, especially the sugar cane, of which they are extremly destructive. Others again reside habitually on the hills or mountains, and visit the sea only once a year for the purpose of depositing their eggs in the sand. All those which reside in burrows made in moist ground, and those coming daily on the rocks to bask in the sun, participate in about an equal degree in thequalities of vigilance and swiftness. Many a breathless race have I run in vain, attempting to intercept them, and prevent their escaping into the sea. Many an hour of cautious and solicitous endeavor to steal upon them unobserved, has been frustrated by their long sighted watchfulness; and several times, when, by extreme care and cunning approaches, I have accnally succeeded in getting between a fine specimen and the sea, and had full hope of driving him farther inland, have all my anticipations been ruined by the wonderful swiftness of their flight, or the surprising facility with which they would dart off in the very opposite direction, at the very moment I felt almost sure of my prize. One day, in particular, I saw on a flat rock, which afforded a fine sunning place, the most beautiful crab I had ever beheld. It was of the largest size, and would have covered a large dinner plate, most beautifully colored with bright crimson below, and a variety of tints of blue, purple, and green above; it was just such a specimen as could not fail to excite all the solicitude of a collector to obtain. But, it was not in the least deficient in the art of self-preservation; my most careful manœuvres proved ineffectual, and all my efforts only enabled me te see enough of it to augment my regrets to a high degree. Subsequently I saw a similar individual in a collection of a resident; this had been killed against the rocks during a violent hurricane, with very slight injury to its shell. I offered high rewards to the black people if they would bring me such a one, but the most expert among them seemed to think it an unpromising search, as they knew of no way of capturing them. If I had been supplied with some powder of nux vomica with which to poison some meat, I *might* have succeeded.

(*To be Continued.*)

For the Advocate of Science.

INCONVENIENCES SUFFERED BY THE INHABITANTS OF THE MOON.

In a late number of the Advocate it is remarked under this head, that "the spots on the surface of the moon, prove that the same hemisphere is always presented to us, from which it is inferred that the inhabitants of one half of the moon never see our earth, and those of the other half never see the sun." The first inference is undoubtedly correct; that is, if the inhabitants of its far side are so well pleased with their locality, as never to come round to take a peep at our most extraordinary world. But the other inference, I think the writer will perceive upon second thought to be erroneous. The moon, in order to keep one side continually towards the earth, must of necessity revolve once on its axis every lunation: consequently it must have one day and night, on every part of its surface, during that time.

By the way, the fact here alluded to is a most extraordinary phenomenon; one which is more inexplicable on any received principle of gravity or motion, than perhaps any other with which we are acquainted in the solar system. That the moon should revolve on its axis no more than once a month, or that it should not revolve at all, thereby presenting every portion of its surface successively to our view, during each lunation, and enjoying one day and night in a year, would not as I apprehend, be very extraordinary. But that its diurnal revolution should exactly coincide with its periodical revolution about the earth; not even varying a second, so that year after year, and century after century, it presents precisely the same face to us, is totally improbable on the ground of mere incidental coincidence, and if I mistake not, is altogether unaccountable upon any principle usually resorted to, to explain other phenomena. The diurnal and periodical motions of the heavenly bodies, for aught that is known, are entirely independent of each other; as much so as the motions of two clocks. And the fact of the coincidence under consideration, is as remarkable as it would be for two clocks to run a thousand years, without varying a second from each other, if there had been no trial to regulate their movements: or for two wheels, moved by two different streams of water, to make precisely the same number of revolutions in a thousand years.

These remarks of course are not intended to imply any inability on the part of Him who formed this stupendous machine, to make such an adjustment of these two motions, if he had chosen. But when we see the periodical times of the earth and other planets, embracing whole numbers and fractions, as it regards their diurnal motions, are we to suppose that the phenomenon in question is to be ascribed to a special design of the Creator, independent of physical laws? To my mind this extraordinary fact implies a direct controlling influence of the earth, forcing the moon, as it were, in this particular to obey its own laws. The diurnal motion of the moon appears to be subject to the action of the earth, much as it would be if a chain passed from one to the other, and was fastened to one side of the moon. May it not be accounted for in this way? The earth attracts the matter of the moon with very considerable force. The side of the moon towards the earth is attracted, and the opposite side projected by a force about fifty times as great as that which the moon exerts in producing our tides. The spheroidal figure of the earth and other planets proves that their shape is determined by the continued action of their centripetal and centrifugal forces. May not the action of the earth on the moon be so great then as to give it a considerably elongated shape? Assuming that from this or some other cause the moon is a prolate spheroid, with its longest diameter ranging towards the earth, the phenomenon I think is easily accounted for. One end of the spheroid would be constantly towards the earth, by attraction, and the other as constantly tending to fly off by projection. A body thus elongated could not revolve upon its transverse axis any faster or slower than to maintain its relative position in respect to the earth, without counteracting both these tendencies.

L. H. P.

ANIMAL MAGNETISM.

A most curious account of this art, science or imposture, is given in a late number of the Select Journal of Foreign Periodical Literature. It appears from the article in the Journal, that a committee of the French Academy of Sciences have, strange as it may appear, made a report in *favor* of animal magnetism. This report is properly pronounced one of the most extraordinary phenomena of the age. About sixty years ago the pretended art of animal magnetism had its origin in the tricks of a charlatan, Mesmer. In 1794, at Paris, the subject was thoroughly examined by commissioners appointed by the king of France, of whom our countryman Dr. Franklin was one; and the fraud was considered as detected. The supposed art, however, notwithstanding the baseness of its origin, and notwithstanding this discomfiture, still retained credit with many, and found disciples and defenders, particularly in Germany. It has now, it seems, revived in full glory; and we have a committee of a very celebrated scientific body, testifying to effects unquestionably *miraculous* in their character. Physical powers are represented as enabling men to see without the use of their eyes, and as conferring the gifts of supernatural divination and prophecy.

We annex a few of the cures, adduced by the French committee, in which they allege they witnessed the effects of magnetism.

One of the most singular and overwhelming of the cases which came under the head of the more recent and important ones, is that of Jules Cloquet, the well known anatomist in Paris, who had, of his own accord, sent in an account of this case to the surgical section of the Academy. He was no magnetizer, but very likely

laughed at and ridiculed the art with as much asperity as the most determined of its enemies. This gentleman, it appears, was called on the 7th of April, 1829, to see a Mrs. P. then residing at 151, Rue St. Denis, Paris. He found that she had cancer of the breast, and that nothing but extirpation of the disease could effect a cure. The lady at this time, had been attended by the physician whom she had long employed, and who was in the habit of magnetizing her into a sleep, or rather somnambule, (for there is a great difference between them,) to produce an oblivion of her sufferings. The physician, M. Chapelain, was sensible that no other hope of saving his patient from a miserable fate remained than that held out by M. Cloquet, and he proposed to the surgeon that he should perform the operation whilst she was in a state of magnetic sleep. The surgeon agreed to it, and the operation was performed accordingly. The patient knew nothing whatever of the proceeding, but was kept asleep for two days, and upon being awoke, and informed of what had taken place, she experienced, says M. Cloquet, a very lively emotion.

The power which it was represented some somnambulists possessed, of seeing perfectly through their closed eyelids, formed the subject of some very close and attentive examinations. The result was, that the commissioners were satisfied, for they looked on, that in one case a patient, in this state, was able to read a book by seeing it through his eyelids! But this was not all; for although his somnambulism continued, yet the patient became very much fatigued, and was invited to play a game at *ecarte*, of which he was very fond. He showed amazing dexterity all the while, and always beat his opponent. It is to be remembered, that during all this time the patient was in a state of somnambulism, and of course was unconscious of what he was doing.

Next is a case of paralysis, cured according to his own prescriptions.

Paul Villagrand, a student at law, who was paralysed as to half his body by a stroke of apoplexy in the country, was admitted into La Charite, at Paris, after having been treated in all manner of ways at home for sixteen months. Now, the committee actually went to the bed where the patient lay, in the hospital, and saw the physical marks, as they were strongly indicated, of his disease.

They found that the lower left limb was much thinner than the right, that the right hand was closed much more firmly than the left, that the tongue when drawn out of the mouth was carried towards the right commissure, and that the right cheek was more convex than the left. Paul was then magnetised, and the result is thus stated in the report:—

"He recapitulated what related to his treatment, and prescribed that, on the same day, a sinapism should be applied to each of his legs for an hour and a half; that next day he should take a bath at Bareges; and that, upon coming out of the bath, sinapisms should be again applied, during twelve hours without interruption, sometimes to one place, and sometimes to another; that, upon the following day, after having taken a second bath at Bareges, blood should be drawn from his right arm to the extent of a *palette* and a half. Finally, he added, that by following this treatment, he would be enabled on the 28th, *i. e.* three days afterwards, to walk without crutches on leaving the sitting, at which, he said, it would still be necessary to magnetise him. The treatment which he had prescribed was followed; and upon the day named, the 28th of Sept., the committee repaired to the Hospital de la Charite. Paul came, supported on his crutches, into the consulting room, where he was magnetised as usual, and placed in a state of somnambulism. In this state, he assured us, that he should return to bed without the use of his crutches, and without support. Upon awakening he asked for his crutches; we told him that he had no longer any need of them. In fact, he rose, supported himself on the paralysed leg, passed through the crowd that followed him, descended the step of the *chambre d'experiences*, crossed the second court de la Charite, ascended two steps, and when he arrived at the bottom of the stair he sat down. After resting two minutes, he ascended, with the assistance of an arm and the balustrade, the twenty four steps of stairs which led to the room where he slept, sat down again for a moment, went to bed without support, and then took another walk in the room, to the great astonishment of all the other patients, who until then had seen him constantly confined to bed. From this day Paul never resumed his crutches."

MISCELLANIES.

1. *Singular Phenomenon.*—A late London paper contains a letter from Hungary, under date of 8th Aug. which states that the country had been deluged, by an almost incessant rain from July 2nd. On August 4th, at daybreak, the weather appeared to be clearing up, but at mid-day, the sun became completely obscured, as if by an eclipse, and five minutes afterwards a globe of fire as large as a carriage wheel appeared in the west, and moving in a serpentine course, broke against the mountains with a tremendous explosion. It was immediately followed by a torrent of rain that inundated the whole country.—The atmosphere became extremely cold, and on the 6th, the Alps were covered with snow.

2. *Curious method of catching wild geese.*—At the mouth of the Frith of Forth is a remarkable rock about a mile in circumference and four hundred feet above the level of the sea, known by the name of the Bass Rock. On its sides wild geese resort for the purpose of laying their eggs, which are hatched on the bare rock, without any thing to protect them. In the months of June and July, which is the period of their incubation, the cliffs are literally covered with their snow white plumage. The method used by fishermen to catch them, is by taking a small wooden plank which is sunk a little below the surface of the sea by means of a stone or a piece of lead; on this plank they put a herring, and then drag the plank after them by a long rope, which leaves the trap considerably astern of the boat. The bird attracted by the sight of its favorite food, wheels two or three times in the air, and then plunges down with such rapidity, that it often transfixes the plank with its bill, and is almost uinvariably stunned or killed by the shock.

3. *Method of taking the young birds.*— It is precisely the same as that adopted in the Feroe Islands, Norway, and on other rocky coasts. The geese hatch and bring up their young on the most precipitous sides of the rocks, where man has no possible means of access, except by being suspended from the head of the precipice.

When this dangerous operation is to be performed, a party, never less than six men, climb up the Bass to some spot where there is firm footing, and which is immediately above a brood of the geese which always lie in large flocks crowded together. The man who is to descend, is secured by a strong rope tied round his body, and a second rope, with a leaden weight at its end, is dropped down by his side within reach of his hand. Both these ropes are kept fast by the men on the top of the rock, who gradually lower their companion down the sides of the perpendicular cliff. The man in his descent, aids himself, or rests himself occasionally, by putting his toes in the crannies or on slight projections of the rock.

The second rope which serves to steady him, he grasps with his left hand, and in his right hand he carries a strong stick to knock down the young birds, and keep off the old ones, whose bite is exceedingly severe. As soon as he reaches the point where the brood lies, he proceeds with all expedition to knock them on the head, on which they fall from the narrow ledge where they were sitting and drop into the sea at the foot of the rock, where they are taken up by the men in boats. Great havoc is thus made on the poor birds in a very few seconds, and when their destroyer has disposed of all he can reach, he is pulled up to the top of the rock.

4. *The moon quieting a revolt in the Roman camp.*—Tacitus relates, that during the reign of Tiberius, a revolt in the Roman army commenced, when this planet was moving in a sky without a cloud. In the midst of the tumult, its orb began to darken in an eclipse. The cause of this prodigy being unknown, the soldiers saw in it a presage of the destiny of their insurrection. They exclaimed, that if that planet should resume its light, their cause would triumph. To aid the moon to regain its lustre, they made their camp echo with the clang of steel and the sound of trumpets. Their confidence fell as the moon became more obscure. At length it was totally eclipsed; and the courage of this infuriate multitude, which had braved the sceptre of the terrible Tiberius, sunk in consternation. The silence of death succeeded their acclamations, and the din of their arms. The fiercest were persuaded that heaven, in wrath, announced to them perpetual misfortune and defeat. They implored the clemency of their chiefs, and in hope returned to the camp with repentance. Tiberius had now only to punish; and with him this was to reign. The empire of the world would have crumbled, if the moon at that emergency had not been in eclipse.

6. *The labor of birds rendered subservient to man.*—In China, the falcon is trained to dart into the air, or plunge into the water to grasp its prey, which, instead of devouring, it lays at the feet of its master. The ostrich yields its back to the daring negro, who is borne along the sandy deserts by this plumed courser with the fleetness of the wind. The South American Indian finds a faithful servant and a companion in the agami. This bird, with its changeable neck of green and gold, is docile to the voice of its master. It follows or precedes him with demonstrations of affection and joy, like a dog. It knows the friends of the house, runs to caress them, and drives away strangers, with whom it is not pleased, by pecking at them with its beak. At evening it is often seen driving before it the flocks of sheep confided to its care, which it has found in the pastures, and conducted to its master's fold.—*Flint's Lectures.*

7. *Cheap street cleaners.*—The vultures and buzzards, the scavengers of the country they inhabit, abound in sultry climates, in marshy regions, where a rank luxuriance of organic life strews decaying vegetation and carcases on every side; and where, of consequence, miasm is most abundant and deleterious. At Carthagena, in South America, they inhabit the roofs of houses, walk in the streets, and are so far the servants of man as to clean the city, which would be otherwise uninhabitable.—*Ib.*

8. *Baron Lindeneau's demonstration of the consumption of the sun.*—It is proved, according to this philosopher, that the successive consumption of the sun, from the beginning of the world, is not yet visible to our eyes. Suppose its diameter nearly a third of a million of miles; or, in astronomical phrase, two thousands seconds of a degree. But as there is no astronomical instrument with which we can measure the diameter of a star to the exactness of a second, the sun may diminish one two-thousandth of its diameter without the possibility of its being perceived. Suppose that the sun now diminishes two feet of its diameter a day, it would require six thousand years to consume two seconds of its diameter, and six millions of years for its entire consumption.

9. *Natural bridge of Icononzo.*—Humboldt gives the following description of the natural bridge of Icononzo, near Santa Fe, in South America. The vallies of the cordilleras are generally crevices, the depth of which is often so great, that were Vesuvius seated in them its summit would not exceed that of the nearest mountains. One of these, namely, that, of Icononzo or Pandi, is peculiarly remarkable for the singular form of its rocks, the naked tops of which present the most picturesque contrast with the tufts of trees and shrubs which cover the edges of the gulf. A torrent, named the Summa Paz, forms two beautiful cascades where it enters the chasm, and where it again escapes from it. A natural arch, 47½ feet in length and 39 in breadth, stretches across the fissure at a height of 318 feet above the stream. Sixty-four feet below this bridge is a second, composed of three enormous masses of rock, which have fallen so as to support each other. In the middle of it is a hole, through which the bottom of the cleft is seen. The torrent, viewed from this place, seemed to flow through a dark cavern, whence arose a doleful sound, emitted by the nocturnal birds that haunt the abyss, thousands of which were seen flying over the surface of the water, supposed by Humboldt from their appearance to be goat-suckers.

10. *Ravages of the small pox and matlazahuatl in Mexico.*—Humboldt gives some interesting details of the epidemics of Mexico. The small pox was introduced in 1520, and seems to exert its power at periods of 17 or 18 years. It appears the discovery of Dr. Jenner had long been known to the country people among the Andes of Peru. The vaccine method was introduced in various parts of Mexico and South America at the commencement of the present century. A negro slave, who had been inoculated for the small pox, showed no symptom of the disease, and when the practitioners were about to repeat the operation, told them he was certain he should never take it; for when milking cows in the mountains, he had been affected with cutaneous eruptions, caused, as the herdsmen said, by the contact of pustules sometimes found in the udders.

In 1763 and 1779 the small pox committed dreadful ravages, having carried off during the latter year more than 9000 persons in the capital alone. In 1797 it was less destructive, in consequence of the increase of inoculation.

But in the most frightful distemper is the *matlazahuatl*, which is peculiar to the Indian race, but seldom appearing more than once in a century. It bears some resemblance to the yellow fever or black vomiting. The extent of its ravages is not known with any degree of certainty, and it has not yet been submitted to medical investigation. Torquedama asserts that in 1545 it destroyed 800,000, and 2,000,000 in 1576; but Humboldt considers these estimates as greatly exaggerated.

11. *Utility of Lightning Rods.*—After the invention of the lightning rod, many persons not partial to the nation to which Franklin belonged, manifested much hostility to the novel mode of protection from thunderstorms, and entertained fears that the conductor would do more harm than good, by attracting the charge of the cloud. Accordingly, a rod of a different construction was invented, having a ball on its top, instead of a point. But experience has proved the incomparable advantages derived from Franklin's conductor. In England, where the prejudice against it was strongest, *facts* soon nullified the theories of the alarmists. One instance of this kind is related in the "Working Man's Companion," an English work, in the following words:—

A few years ago the spire of the fine old church in which Shakespeare is buried at Stratforb-upon-Avon, was struck by lightning; and saved by the conductor: the rod was composed of many pieces, and after the storm, every joint of it was found blackened. Several large stones at the bottom of the conductor which passed down the inside of the church, were turned completely over; and if there had been no cohductor, the spire would have been thrown down, and the whole church perhaps destroyed; so that the tomb of one great man was saved by the discoveries of another.

13. *Burial of Mrs. Hannah Moore.*—The remains of the late Mrs. Hannah Moore, were removed on the 13th from Windsor terrace, Clifton, and interred in the family vault in Wrington churchyard. She particularly wished her funeral should be devoid of public paraphernalia; but, in its stead, suits of mourning to be given to fifteen poor old men of her acquaintance. In this respect her wish has been obeyed. On passing through Bristol all the bells of the churches tolled; at the entrance of her native parish the scene was imposing. About a mile from Wrington all the gentlemen of the neighborhood met the procession, and for the last half mile the road on either side was lined with villagers, chiefly in black, scarcely one without a ribband. At the entrance of the village, charity children, amounting to more than 200, with a great number of the clergy in their gowns, headed the procession. Her remaius lie near the grave of Locke, She died on the 7th, in the eighteith year of her age.

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